

REMARKS

Claims 1-3 and 6-11 have been rejected by the Examiner under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,617,409 to Yukawa et al. in view of U.S. Patent No. 6,177,196B1 to Brothers et al. Claim 4 has been rejected by the Examiner under 35 USC 103(a) as being unpatentable over the combined teaching of Yukawa and Brothers and further in view of U.S. Patent No. 6,489,396B2 to Nakamura et al. In addition, claim 5 has been rejected by the Examiner under 35 USC 103(a) as being unpatentable over the combined teaching of Yukawa and Brothers and further in view of U.S. Patent No. 5,216,081, to Mohri et al. These rejections are respectfully traversed.

The present invention is directed to a flake pigment provided with a coating made of a resin composition containing a copolymer comprising a bond unit from a fluoric polymerizable monomer having alkyl fluoride groups and a bond unit arising from a polymerizable monomer having phosphate groups. The flaked pigment is used in paint for providing the paint with high brightness. Thus, the flaked pigment of the present invention is usable in a powder paint for supplying a film with excellent metallic properties, high brightness and excellent secondary adhesiveness.

As recognized by the Examiner, the prior art reference relied upon to reject the claims of the present application do not meet the two main features of the present invention, that is, wherein the alkyl fluoride groups and the phosphate groups are present in separate side chains of the copolymer and the fact that the resultant copolymer is soluble in a solvent due to its molecular structure. Thus, in the flaked pigment of the present invention, the copolymer covering the flake particle contains:

1. a bond unit arising from a fluoric polymerizable monomer having alkyl fluoride groups; and
2. a bond unit arising from a polymerizable monomer having phosphate groups.

Since the alkyl fluoride groups and the phosphate groups are contained in different bond units, respectively, they are present in independent respective side chains in the copolymer.

As noted, on page 12 of the present Application, the alkyl fluoride group in the copolymer molecular structure in the present invention plays a role of floating the flake pigment to which the copolymer is adsorbed on the surface of the film through the inferior affinity of the alkyl fluoride group with respect to other surfaces. According to this effect, the flake pigment can be arranged in parallel with the substrate, for attaining excellent metallicity. On the other hand, the phosphate group in the copolymer molecular structure of the present invention plays a role of absorbing this copolymer to the flake particles through excellent adsorbability of the phosphate group. The phosphate group can improve secondary adhesiveness at the same time. The phosphate group exhibiting excellent adsorbability with respect to the flake particles can coat the flake particles with the copolymer through adsorption, and neither long reaction time nor complicated polymerization process may be required as compared with conventional polymeric resin coatings which provide an advantageous process in connection with industrial manufacturing.

The alkyl fluoride group in the copolymer molecular structure exhibits inferior affinity with respect to other substances and the phosphate group in the copolymer molecular structure exhibits excellent adsorbability of the phosphate group because the respective groups are present in independent side chains. In other words, such independent roles are never fulfilled if these groups are present in an identical side chain, because, in the copolymer, the side chain having the phosphate groups is selectively adsorbed to the flake particles and the side chain having the alkyl fluoride groups is provided away from the phosphate groups, and consequently, the side chain is likely to form the outermost surface of the flake particle. Accordingly, the effect originating from the fluorine polymerizable monomer and the effect originating from the polymerizable monomer having phosphate groups are exhibited without contracting each other.

Furthermore, the copolymer of the present invention is soluble in a solvent when coating the surfaces of the flake particles by adsorption as a finishing agent. Therefore, each of the aforementioned fluorine polymerizable monomer having alkyl fluoride groups and the polymerizable monomer having phosphate groups is preferably a monomer having only one polymerization activating site in one molecular, and the obtained polymer is desirably a linear skeleton polymer.

In rejecting claims 1-3 and 6-11 under 35 USC 103(a) as set forth on page 3 of the Examiner's Office Action letter, the Examiner relies upon the Brothers reference to fill the deficiencies of the Yukawa reference by arguing that it would be obvious to one of ordinary skill in the art to utilize fluoro olefins monomers disclosed by Brothers with phosphate monomers disclosed by Yukawa to make a copolymer to coat the flake aluminum pigment with the motivation being that the copolymer comprising phosphate and fluoride groups are rendered good "chemical resistance, release lubricity, anti-staining, ice release, and low dielectric constant" to the pigment, referring to Col. 5, lines 37-40 of the Brothers reference. However, in referring to this portion of the Brothers patent, the Examiner has selectively ignored that the coatings in the Brothers reference are useful for articles requiring "anti-reflective" properties (emphasis added). Thus, the Examiner has specifically excluded or inadvertently overlooked the expression "anti-reflective" in his description of Col. 5, lines 37-40 of the Brothers reference. Specifically, the Brothers reference clearly states in Col. 5, lines 37-40 that the coating of the Brothers reference can be useful for articles requiring an "anti-reflective" characteristic.

As the Examiner will recall, the flake aluminum pigment allegedly described in the Yukawa et al. reference is similar to the flake pigment of the present invention in the sense that it possesses metallic and brightness properties. That is, the flake aluminum pigment in the Yukawa reference is clearly directed to an article requiring "reflective" characteristics as distinguished from "anti-reflective" characteristics. Since the monomer in the Brothers reference is utilized in

an article requiring “anti-reflective” characteristics, such a disclosure teaches against combining the references using the obviousness standard as defined by 35 USC 103.

In addition, even if for sake of argument, it would be obvious to combine the teachings of the Yukawa and Brothers references as suggested by the Examiner, said combination would still not reach the present invention.

Specifically, the fluoropolymer in Brothers contains a compound represented by the formula $\text{CF}_2=\text{CF}-\text{R}_f-(\text{CH}_2)_n-\text{OP}(\text{O})_p-\Phi_2$ (hereinafter referred to as “compound A”) as the bond unit (see claim 1). This compound A includes alkyl fluoride groups (R_f) and phosphate groups $(-\text{CH}_2)_n-\text{OP}(\text{O})_p-\Phi_2$ in one molecule. Therefore, even though compound A is copolymerized with a phosphate monomer or a phosphoric acid monomer in the Yukawa reference, the alkyl fluoride group and the phosphate group would not be present in separate side chains in the copolymer, as in the present invention. This is because, even if the alkyl fluoride group in compound A may be present in the side chain separate from the phosphate group derived from the Yukawa reference, the alkyl fluoride group and the phosphate group are present in the identical side chain at least in a part of this compound A in the copolymer, so long as the phosphate group is contained in compound A itself. Therefore, so long as the alkyl fluoride group and the phosphate group are present in the identical side chain even in a part of the copolymer, as explained above, the excellent effect of the present invention cannot be obtained, because only when these groups are present in separate side chain can the alkyl fluoride group serve to float the flake pigment on the surface of the film and can the phosphate group serve to adsorb the copolymer to the flake particles (page 12, lines 2-6 and page 13, lines 1-11 of the specification).

Concerning the feature of the present invention wherein the Applicants’ copolymer is soluble in a solvent due to its molecular structure, the Examiner argues that although the combined teachings of the Yukawa and Brothers references are silent with respect to this feature,

since the copolymer is made from two different monomers and the molecular structure of the copolymer is similar to that of the instant application, the claimed solubility would be expected to be present because the same copolymer is expected to have the same characteristics. However, such an argument based on "inherency" must meet a very high standard.

Furthermore, when relying on the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily follows from the teachings of the applied art. See, Ex parte Levy, 17 USPQ2d 1461, 1464 (BD. Pat. App. & Int. 1990). There can be no speculation or only possibilities involved in a holding of inherency. What is alleged to be inherent must necessarily occur. The mere fact that something may result from a given set of circumstances is not sufficient. In re Oetric, 212 USPQ 323, 326 (CCPA 1991). "Inherent anticipation requires that the missing descriptive material is necessarily present; not merely probably or possibly present, in the prior art." Trintec Indus. Inc. v. Top-U.S.A. Corp., 295 F-3d, 1292, 1295, 63 USPQ2d 1597, 1599 (Fed. Cir. 2002) (quoting In re Robertson, 169 F-3d 743, 745, 49 USPQ2d, 1949, 1950-51 (Fed. Cir. 1999)).

Since the references relied upon by the Examiner to reject claims 4 and 5 of the present application do not fill the deficiencies of the Yukawa and Brothers references, for all of the reasons set forth hereinabove, it is believed that for the same reasons as argued in connection with claims 1-3 and 6-11, claims 4 and 5 are patentably distinguishable over the references relied upon by the Examiner, either alone or in combination.

Accordingly, in view of the above remarks, reconsideration of the rejections and allowance of all of the claims of the present application are respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Joseph A. Kolasch Reg. No. 22,463

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at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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